



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,791	10/09/2001	Erhard Schreck	3123-384	7249

32093 7590 06/03/2005

HANSRA PATENT SERVICES
4525 GLEN MEADOWS PLACE
BELLINGHAM, WA 98226

EXAMINER

SMITH, TYRONE W

ART UNIT PAPER NUMBER

2837

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,791

Applicant(s)

SCHRECK ET AL.

Examiner

Tyrone W. Smith

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 31-35 is/are rejected.
- 7) ☒ Claim(s) 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6, 9-12, and 15-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al (5016124) in view of Tam et al (5412809).

Regarding Claims 1, 2, 6, 12, 15 and 16. Fukushima discloses a recording apparatus with control of energy to the (disc) drive at start up. Fukushima's invention includes a user selectable maximum current draw (Figure 1A item 96); receiving a maximum current draw selection (Figure 1A items 93-96; abstract; column 5 lines 1-24 and column 20 lines 67-68) and limiting an actual current draw of the drive to a selected maximum (column 20 lines 1-67 and column 21 lines 1-7) which is similar to Fukushima where the supply means (current) and control means (Figure 1A items 93 and 91) start, in the first start mode, the drive means/disc drive (Figure 1A items 2,3, 6, 88 and 89), in a first fixed signal and controls (through current) the drive speed of the drive means/disc drive in the same speed as the first mode (using the same current used in the first start mode for normal operation). Further, the current draw selected can be a plurality of amounts. Refer to column 21 lines 47-68 and column 22 lines 1-6. However, Fukushima does not disclose a user selected maximum current draw.

Tam discloses a disk drive power control circuit and method which discloses depending on the user's need, a computer user can select either the automatic spindle motor current control disclosed in Tam or a fixed large drive for starting the disk drive. Refer to column 4 lines 52-68 and column 5 lines 1-3.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the concepts would provide a disk drive apparatus or similar that is capable of always controlling a motor in accordance with the supply capacity of the power source and a motor control circuit, which is highly, suited to the disk drive apparatus.

Regarding Claim 9 and 10. Fukushima discloses a hardware switch/trigger button (Figure 1A item 96). The trigger button used by Fukushima can be a jumper, mechanical switch or similar type.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the concepts would provide a disk drive apparatus or similar that is capable of always controlling a motor in accordance with the supply capacity of the power source and a motor control circuit, which is highly, suited to the disk drive apparatus.

Regarding Claims 11. Fukushima specifies maximum current draw selection by using a combination of the trigger button and systems controller (Figure 1A item 91). Refer to column 6 lines 49-55.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with

Tam's disk drive power control circuit and method. The advantage of combining the concepts would provide a disk drive apparatus or similar that is capable of always controlling a motor in accordance with the supply capacity of the power source and a motor control circuit, which is highly, suited to the disk drive apparatus.

Regarding Claim 17. Fukushima's invention, as well as others of similar type and scope, can set a normal operating current of the disk drive.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the concepts would provide a disk drive apparatus or similar that is capable of always controlling a motor in accordance with the supply capacity of the power source and a motor control circuit, which is highly, suited to the disk drive apparatus.

3. Claims 18-29 and 31-35 rejected under 35 U.S.C. 103(a) as being unpatentable over McAllister (5397971) in view of Fukushima et al (5016124) and Tam et al (5412809).

Regarding Claims 18, 19, 22, 23, 25-29 and 32. McAllister discloses a bi-polar disk torque system for a disk drive that includes a base, spindle motor, first storage disk, transducer and actuator which are disclose in Figures 1 and 7, column 3 lines 47-68, column 4 lines 1-61 and column 8 lines 25-57. However, McAllister does not disclose a maximum current draw selector where it selects a maximum disk drive supply current and the maximum current draw by the disk drive does not exceed the selected maximum.

Fukushima discloses a recording apparatus with control of energy to the (disc) drive at start up. Fukushima's invention includes a user selectable maximum current draw (Figure 1A

item 96); receiving a maximum current draw selection (Figure 1A items 93-96; abstract; column 5 lines 1-24 and column 20 lines 67-68) and limiting an actual current draw of the drive to a selected maximum (column 20 lines 67-67 and column 21 lines 1-7) which is similar to Fukushima where the supply means (current) and control means (Figure 1A items 93 and 91) start, in the first start mode, the drive means/disc drive (Figure 1A items 2,3, 6, 88 and 89), in a first fixed signal and controls (through current) the drive speed of the drive means/disc drive in the same speed as the first mode (using the same current used in the first start mode for normal operation). Further, the current draw selected can be a plurality of amounts. Refer to column 21 lines 47-68 and column 22 lines 1-6. However, neither McAllister nor Fukushima a user selected maximum current draw or start-up current.

Tam discloses a disk drive power control circuit and method which discloses depending on the user's need, a computer user can select either the automatic spindle motor current control disclosed in Tam or a fixed large drive for starting the disk drive. Refer to column 4 lines 52-68 and column 5 lines 1-3.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the basis ideology McAllister's a bi-polar disk torque system for a disk drive and Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the two would provide a system that is capable of minimizing not only time lag but also electric energy consumption and a motor control circuit that is suited for disk drives or similar types.

Regarding Claims 20 and 33-34. Fukushima discloses a hardware switch/trigger button (Figure 1A item 96). The trigger button used by Fukushima can be a jumper, mechanical switch or similar type.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the basis ideology McAllister's a bi-polar disk torque system for a disk drive and Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the two would provide a system that is capable of minimizing not only time lag but also electric energy consumption and a motor control circuit that is suited for disk drives or similar types.

Regarding Claims 21 and 35. Fukushima specifies maximum current draw selection by using a combination of the trigger button and systems controller (Figure 1A item 91). Refer to column 6 lines 49-55.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the basis ideology McAllister's a bi-polar disk torque system for a disk drive and Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the two would provide a system that is capable of minimizing not only time lag but also electric energy consumption and a motor control circuit that is suited for disk drives or similar types.

Regarding Claim 24. Fukushima discloses the maximum disk drive supply current to the disk drive plus an additional (second) amount of current less than the maximum disk drive supply current. Refer to column 21 lines 47-68 and column 22 lines 1-6.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the basis ideology McAllister's a bi-polar disk torque system for a disk drive and Fukushima's a recording apparatus with control of energy to the (disc) drive at start up with Tam's disk drive power control circuit and method. The advantage of combining the two would provide a system that is capable of minimizing not only time lag but also electric energy consumption and a motor control circuit that is suited for disk drives or similar types.

4. Claims 3-5 and 13-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al (5016124) and Tam et al (5412809) as applied to claims 1, 2, 6, 9-12, and 15-17 above, and further in view of Dunn (5381279).

Regarding Claims 3-5 and 13-14. . Fukushima discloses a recording apparatus with control of energy to the (disc) drive at start up. Fukushima's invention includes a user selectable maximum current draw (Figure 1A item 96); receiving a maximum current draw selection (Figure 1A items 93-96; abstract; column 5 lines 1-24 and column 20 lines 67-68) and limiting an actual current draw of the drive to a selected maximum (column 20 lines 67-67 and column 21 lines 1-7) which is similar to Fukushima where the supply means (current) and control means (Figure 1A items 93 and 91) start, in the first start mode, the drive means/disc drive (Figure 1A items 2,3, 6, 88 and 89), in a first fixed signal and controls (through current) the drive speed of the drive means/disc drive in the same speed as the first mode (using the same current used in the first start mode for normal operation). Further, the current draw selected can be a plurality of amounts. Refer to column 21 lines 47-68 and column 22 lines 1-6. However, Fukushima does not disclose a user selected maximum current draw.

Tam discloses a disk drive power control circuit and method which discloses depending on the user's need, a computer user can select either the automatic spindle motor current control disclosed in Tam or a fixed large drive for starting the disk drive. Refer to column 4 lines 52-68 and column 5 lines 1-3. However, neither Fukushima not Tam discloses the disk drive during seek operation is equal to a steady state spin current of a spindle motor of the disk drive plus a current drawn by the actuator of the disk drive when actuator is in operation form a first to a second position.

Dunn discloses a disk drive system with adjustable spindle and actuator power to improve seeks and access performance. Dunn discloses the disk drive during seek operation is equal to a steady state spin current of a spindle motor of the disk drive plus a current drawn by the actuator of the disk drive when actuator is in operation form (abstract; column 3 lines 21-44 and column 4 lines 4-48).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Fukushima's a recording apparatus with control of energy to the (disc) drive at start up and Tam's concept with Dunn's a disk drive system with adjustable spindle and actuator power to improve seek and access performance. The advantage of combining the two would provide a disk drive system in which seek performance is improved while maintaining constant power utilization.

5. Claim 30 allowed.

Response to Amendment and Arguments

6. Applicant's arguments filed March 4, 2005 have been fully considered but they are not persuasive.

Applicant argues that Tam [809] does not disclose maximum current draw without the need to make a second selection, where the Applicant states that Tam discloses the user can make two selections (one for actuator assembly and another for the spindle motor) as discussed in arguments. Further, Applicant states that Tam invention does not allow selection of the user to be implemented. Instead, the firmware will check to see whether the user's selection is appropriate or not. Examiner takes Applicant's arguments in full consideration.

Examiners' rejection is based on the claims as present and gives the broadest reasonable interpretation of the claims. The limitation states *"receiving a maximum current draw first selection, selected by said user, without the need for the user to make a second selection in order to select said maximum current draw; and limiting an actual current draw of said disk drive to said selected maximum."* Therefore, Examiner believes Tam teaches the current invention as presented. Examiner agrees that Tam teaches making two selections but it's depended on the user's needs. As disclosed in Tam the present invention automatically selects the lowest possible start up current for the spindle motor, since the settling time for the spindle motor to attain the required rotation rate is usually not very important. However, depending on the user's needs, a computer user can select either the automatic spindle motor current control of the present invention or the fixed large drive current for achieving the user's purposes. The user has the option to select either the automatic spindle motor current control of the present invention or the fixed large drive current. This can be the first selection for achieving maximum current draw without making another selection. Examiner maintains rejection of the current claims.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2837

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on 571-272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith
Patent Examiner

Art Unit 2837


MARLON T. FLETCHER
PRIMARY EXAMINER